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SHORT COMMUNICATION

Telehealth and the digital divide as a social determinant of health during the COVID-19 pandemic

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Abstract
Telehealth has been shown to have comparable health outcomes in terms of patient-physician communication, and patient satisfaction and engagement. Nevertheless, the digital divide has exacerbated the social and economic factors that create barriers to health and well-being. It, therefore, maybe a social determinant of health (SDOH). Such issues as decreased internet connectivity and a lack of Wi-Fi and video chat/webcam in both urban and rural areas can hinder the effectiveness of telehealth to its full capability, especially among communities of color, the poor, and medically underserved. The social aspects of the provision of health care by physicians and health care workers are utilized to combat mistrust and strengthen the physician–patient therapeutic relationship. Addressing policy changes to address the digital divide as a SDOH may strengthen existing health care and public health systems to allow for patient and community-centered approaches to expressing lived narratives, including in a digital format.

Keywords COVID-19 · Telehealth · Social determinants of health · Digital divide · Obstetrics and gynecology

1 Commentary

As a board-certified obstetrician-gynecologist on the front-line, delivering maternity care to pregnant and birthing persons in an underserved hospital in East Harlem, the social determinants of health were front and center during the initial wave of the COVID-19 pandemic. Disparities in maternal morbidity and mortality accounting for Black women dying from pregnancy-related complications at three to four times the rate of white women, notably prior to this current public health crisis (New York City Department of Health and Mental Hygiene 2016). The factors that disproportionately impact Black women (and increase the risk for severe maternal morbidity) include preconception health status; the prevalence of obesity and other co-morbidities; access to care; inadequate housing; residential segregation; lower educational attainment; and racism and its attendant stresses. Black women are not protected from poor health outcomes based on socioeconomic status, education or amount of prenatal care (New York City Department of Health and Mental Hygiene 2016). In addition, implicit bias and structural racism have played a role in creating and perpetuating health and health care disparities.

According to the World Health Organization, social determinants of health (SDOH) are "the conditions in which people are born, grow, live, work and age" (Magnan 2017). These circumstances are shaped by the power, wealth, and distribution of resources globally, nationally, and locally, and may determine access and quality of medical care (Magnan 2017). Further, social engagement and where a person lives can impact one's sense of security and well-being. Quality of life may be enhanced by safe and affordable housing, access to education, public safety, the availability of healthy foods, local emergency/health services, and toxin-free environments. Examples of these social determinants include resources to meet one's daily needs (e.g., safe housing and local food markets); access to educational, economic, and job opportunities; access to health care services; quality of education and job training; availability of community-based resources in support of community living and opportunities for recreational and leisure-time activities; transportation options; public safety; social support networks; social norms and attitudes (e.g., discrimination, racism, and distrust of government); exposure to crime, violence, and social disorder (e.g., presence of trash and lack of cooperation in a

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community); socioeconomic conditions (e.g., concentrated poverty and the stress associated with it); residential segregation; language/literacy; access to mass media and emerging technologies (e.g., cell phones, the Internet, and social media); and culture (Office of Disease Prevention and Health Promotion xxxx).

Coronavirus Disease 19 (COVID-19) is a respiratory illness caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It causes a wide variety of symptoms, including severe respiratory illness and death, and in pregnant persons, higher rates of preterm deliveries and cesarean sections (Della Gatta et al. 2020; Stumpfe et al. 2020). COVID-19 has resulted in the deaths of millions throughout the world and over 500,000 deaths in the United States.[6] Prior to the pandemic, telemedicine was primarily utilized to address access to healthcare services, especially in rural and underserved settings, where there are limited specialty and sub-specialty services, such as high-risk obstetrics or maternal-fetal-medicine, abortion and fertility services, reproductive endocrinology, and gynecologic oncology. As technology advanced and with more insurance company reimbursement, telehealth was necessary for providing real-time medical care as the pandemic continued and pilot studies by clinicians demonstrated its feasibility in place of in-person visits as an adjunct part of clinical care (Darrat et al. 2019).

What is the difference between telemedicine and telehealth? Telemedicine refers to traditional clinical diagnosis and monitoring that is delivered by technology. Telehealth, in contrast, includes virtual visits, remote patient monitoring, and mobile health care (ACOG Committee and Opinion Implementing Telehealth in Practice 2020). Telehealth has been proven to have comparable health outcomes to traditional health care delivery in terms of the patient-physician relationship, and patient satisfaction and engagement (ACOG Committee and Opinion Implementing Telehealth in Practice 2020).

Nevertheless, the digital divide has exacerbated the social and economic factors that create barriers to health care delivery and well-being. According to the Federal Communications Commission (FCC) and others, approximately between 21 and 42 million Americans lack high-speed internet access (Holpuch 2020). This disparity has been highlighted since 2017 by the American Medical Informatics Association (AMIA), who urged the United States government to recognize broadband access as a social determinant of health. For example, in the Bronx, New York, the poorest borough of New York City, there has been a sharp drop in broadband speeds by 10 megabits per second. This drop-in connectivity has affected both rural and urban areas with poor and severely medically underserved populations (Unequal Treatment Confronting Racial 2003). Darrat et al. found that age, sex, median household income, insurance status, and marital status were associated with patient participation in telehealth (Darrat et al. 2019). The pandemic has demonstrated the need for innovation beyond traditional health care delivery in the bricks and mortar of academic medical centers and health care systems. Community-based approaches to the delivery of care where patients physically are, if feasible, may address several of the challenges that SDOH impose.

Since the publication of the Institute of Medicine's Unequal Treatment report, it has been evident that certain racial and ethnic groups in the United States are less likely to receive preventative medical services than white Americans and often receive lower quality care (Unequal Treatment Confronting Racial 2003). Income disparities, segregated residence based on redlining, eviction practices, disinvestment in low-income communities, housing instability, and insurance segregation have determined which hospitals patients utilize for care. Telemedicine and digital-based prenatal care are strategies that have been successful in reducing in-person visits for routine questions and concerns. Access issues that have been vital in this pandemic for obstetrics include universal COVID-19 testing for all pregnant persons in labor and for elective cesarean sections. Unequal access to Wi-Fi or webcam/video chat services, limit telehealth beyond routine phone calls.

For communities of color, hard of hearing, and deaf patients, and those with physical and mental disabilities, the in-person and social interaction between physicians and their patients, especially in obstetrics and gynecology, are paramount to the development of trust and improved communication and understanding. Access to verbal and nonverbal cues is lost as in the in-person visit. Mask wearing in which reading lips is not possible, except for the clear masks, has further limited communication for deaf patients. As a front-line worker, I miss the touch of my patient's hand, the hugs of appreciation or comfort after a poor outcome, the ability to touch the babies that I have assisted in birth in the nursery setting, and the ability to shake the hands of my patient's partners, congratulating them during the joys of childbirth. All of this is absent with telehealth. As a physician of color, this is even more critical for my patients and myself, where many interactions include an unsaid understanding of shared lived experiences, sociocultural and historical traumas, and past and current mistrust of the medical establishment.

Telehealth and the technology models may be utilized to address maternity care "deserts," which are "[counties] in which access to maternity health care services [are] limited or absent, either through lack of services or barriers to a women's ability to access that care" (Taylor et al. 2019). Education on telehealth at the medical school and academic medical center levels are needed in a health systems science approach to training a more diverse and culturally competent physician workforce that are of, and by the communities that they serve, and that can work with such birth workers

as nurses, doulas, midwives, perinatal support teams and community lay workers, collaboratively for the benefit of maternal and infant health.

Policy changes in obstetrics and gynecology are needed to address the digital divide as a SDOH including the need to strengthen existing health care and public health systems, even if it means dismantling them in their current form, to allow for patient and community-centered approaches to expressing lived narratives. Allowing for allyship, cultural humility of physicians and health care providers, and the involvement of community-based organizations and stakeholders to achieve birth equity and reproductive justice are critical. This is possible by expanding the broadband capacity for all urban, rural, and underserved areas. The COVID-19 pandemic has highlighted more than ever the need for access to maternity care, family planning, other reproductive health care services, and abortion and contraceptive coverage. Future research on policy solutions and interventions addressing SDOH in the prenatal, antenatal, and postnatal setting may offer alternate health care models to the current broken health care delivery system.

Declarations

Conflicts of interest The author has no financial conflicts of interest to disclose.

Informed consent This research did not involve any human participants nor animals. There was no indication for informed consent.

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